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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,734	04/02/2004	Devabhaktuni Srikrishna	TROPOS-1009-1	1391
7590 Brian R. Short Tropos Networks Patent Department P.O. Box 641867 San Jose, CA 95164-1867			EXAMINER CHU, WUTCHUNG	
			ART UNIT 2616	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/816,734

Applicant(s)

SRIKRISHNA ET AL.

Examiner

Wutchung Chu

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 8/14/2006; 4/2/2004; 7/16/2007.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Priority*

1. Applicant's claim for domestic priority under 35 U.S. C. 119(e) is acknowledged.

### *Claim Objections*

2. Regarding claims 26-31 and 33-38 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claims 26-31 and 33-38 are method claims, but are directed to toward an apparatus. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-8, 10-15, 17-20, 22-23, 25-28, 30-35, and 37-38 rejected under 35 U.S.C. 102(e) as being anticipated by Dantu et al. (US2006/0233237).

Regarding claim 1, Dantu et al. disclose a wireless router and method for processing traffic in a wireless communications network (**see paragraph 8 line 1-5**) comprising:

- the access node receiving over a plurality of channels (**see paragraph 59 and figure 3 ref32 links**), indicators (**see paragraph 96 indicator**) from at least one upstream access node (**see figure 15 box 378 primary wireless router and paragraph 56 line 6-8**), the indicators providing information of selected upstream paths between each of the upstream access nodes (**see paragraph 63 line 1-10**) and upstream gateways (**see figure 15 box 384 wireless router**); and
- the access node determining an optimal set of routing paths between the access node and at least one upstream gateway, based upon the indicators, the optimal set of routing paths including a combination of paths over multiple channels (**see paragraph 63 line 12-20 and paragraph 59 line 1-3**).

Regarding claim 2, Dantu et al. teaches the plurality of channels comprises transmission channels according to at least one of 802.11(a), 802.11(b), 802.11(g), 802.11(n), 802.16 transmission protocols (**see paragraph 51 line 6 802.11 based**).

Regarding claim 3, Dantu et al. teaches the access node determining an optimal set of routing paths comprises determining a path quality of the available paths, and selecting the optimal paths based upon a selection criterion (**see paragraph 63 line 18-20**).

Regarding claim 4, Dantu et al. teaches the selection criterion is based upon an information throughput of the routing paths (**see paragraph 48 line 1-4**).

Regarding claim 5, Dantu et al. teaches the selection criterion is based upon a number of hops of the routing paths **(see paragraph 63 line 18-20 and paragraph 96)**.

Regarding claim 6, Dantu et al. teaches the optimal set of routing paths includes at least one of a plurality of possible routing paths **(see paragraph 63 line 10-12)**.

Regarding claim 7, Dantu et al. teaches the optimal set of routing paths includes a combination of paths through multiple upstream access nodes **(see paragraph 56 line 6-9)**.

Regarding claim 8, Dantu et al. teaches the indicators comprise beacons originating at the gateways **(see paragraph 96 indicator and paragraph 63 radio routing protocol is used by the wireless routers, and figure 15 box 384 wireless router corresponds to gateways)**.

Regarding claim 10, Dantu et al. teach the beacons comprise hop indicators that are incremented with each hop **(see paragraph 96 it is inherent that hop indicators that are incremental with each hop)**.

Regarding claim 11, Dantu et al. teaches selected upstream paths between each upstream access node and upstream gateways **(see paragraph 63 line 12-20 and paragraph 59 line 1-3)** can include a combination of paths, over multiple channels **(see paragraph 59 and figure 3 ref32 links)**.

Regarding claim 12, Dantu et al. teaches selected upstream paths between each upstream access node and upstream gateways are selected based upon path quality

**(see paragraph 63 line 19-20 based on a consistent interpretation of a per-hop cost or other metric).**

Regarding claim 13, Dantu et al. teaches the path quality is determined by an information throughput of the upstream paths **(see paragraph 48 line 1-4 and paragraph 53 and 54).**

Regarding claim 14, Dantu et al. teaches the path quality is determined by a number of hops included within the upstream paths **(see paragraph 63 line 1-10 and 96).**

Regarding claim 15, Dantu et al. teaches further comprising the access node transmitting a modified indicator over a plurality of channels, the modified indicator **(see paragraph 96 indicator and it is inherent that the access node transmitting a modified indicator over a plurality of channels)** including the optimal set of routing paths between the access node and the at least one upstream gateway **(see paragraph 63).**

Regarding claim 17, Dantu et al. disclose a wireless router and method for processing traffic in a wireless communications network **(see paragraph 8 line 1-5)** comprising:

- each access node receiving over a plurality of channels **(see paragraph 59 and figure 3 ref32 links)**, indicators from at least one upstream device **(see figure 15 box 378 primary wireless router);**

- if the at least one upstream device is an upstream access node, the indicators providing information of selected upstream paths between each of the upstream access nodes and upstream gateways (**see paragraph 63 line 19**); and
- each access node determining an optimal set of routing paths between the access node and at least one upstream gateway, based upon the indicators, the optimal set of routing paths including a combination of paths over multiple channels (**see paragraph 63 line 10-20 and paragraph 59 line 1-3**).

Regarding claims 18-20 and 22-23, Dantu et al. disclose all the limitations as discussed in the rejection of claims 2-3, 8, 11, and 15 and are therefore claims 18-20 and 22-23 are rejected using the same rationales.

Regarding claim 25, Dantu et al. disclose a wireless router and method for processing traffic in a wireless communications network (**see paragraph 8 line 1-5**) comprising:

- a plurality of radios (**see paragraph 50 line 6 mobile devices and figure 1 ref44**) operable on a plurality of transmission channels, the radios receiving over a plurality of channels (**see paragraph 59 and figure 3 ref32 links**), indicators (**see paragraph 96 indicator**) from at least one upstream access node (**see figure 15 box 378 primary wireless router and paragraph 56 line 6-8**), the indicators providing information of selected upstream paths between each of the upstream access nodes

**(see paragraph 63 line 1-10) and upstream gateways (see figure 15 box 384 wireless router); and**

- means for determining an optimal set of routing paths between the access node and at least one upstream gateway, based upon the indicators, the optimal set of routing paths including a combination of paths over multiple channels **(see paragraph 63 line 12-20 and paragraph 59 line 1-3).**

Regarding claims 26-28 and 30-31, Dantu et al. disclose all the limitations as discussed in the rejection of claims 2-3, 8, 11, and 15 and are therefore claims 26-28 and 30-31 are rejected using the same rationales.

Regarding claim 32, Dantu et al. disclose a wireless router and method for processing traffic in a wireless communications network **(see paragraph 8 line 1-5)** comprising:

- at least one gateway **(see paragraph 56 line 5-8)**, each gateway transmitting beacons through a plurality of transmission channels **(see paragraph 63 line 1-10 and paragraph 96 hop count and indicator);**
- a plurality of access nodes **(see figure 15 box 378 and 382)**, each access node receiving beacons **(see paragraph 96 indicator)** through at least one of the transmission channels **(see paragraph 59 line 7 control channels and figure 3 ref74)**, each access node selecting routing paths **(see paragraph 63 line 10-12)** based upon path indicator information within the received beacons, the routing paths selected from the plurality of transmission channels **(see paragraph 63 line 12-20)**, the selected set



of routing paths including a combination of paths over multiple channels  
(see paragraph 59 line 1-3); and

- a client, the client receiving beacons through at least one of the transmission channels from at least one of the access nodes (see paragraph 63 line 1-10).

Regarding claims 33-35 and 37-38, Dantu et al. disclose all the limitations as discussed in the rejection of claims 2-3, 8, 11, and 15 and are therefore claims 33-35 and 37-38 are rejected using the same rationales.

### ***Claim Rejections - 35 USC § 103***

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 9 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Dantu et al. (US2006/0233237).

Regarding claim 9, Dantu et al. disclose the claimed invention exception of the beacons are retransmitted by the upstream access nodes after the beacons have been modified to include selected upstream routing information. It would have been obvious to one of ordinary skill in the art at the time of the invention was make to use routing message over the routing message channel as to retransmitted by the upstream access nodes after the beacons have been modified to include selected upstream routing information (**see paragraph 63 and paragraph 96**), as taught by Dantu et al. in order to provide efficient connectivity between remote devices (**see paragraph 4**).

Regarding claim 16, Dantu et al. teach the constructing a client tree in the gateway, wherein the gateway has at least one path including multiple channels to all clients (**see paragraph 63 line 10-12**), and disclose the claimed invention exception of sending a reverse beacon to the gateway; and. It would have been obvious to one of ordinary skill in the art at the time of the invention was make to use routing message over the routing message channel (**see paragraph 63 line 1-10**) as to send a reverse beacon to the gateway as taught by Dantu et al. in order to provide efficient connectivity between remote devices (**see paragraph 4**).

Regarding claims 21, 24, 29, and 36, Dantu et al. disclose all the limitations as discussed in the rejection of claims 9 and 16 and are therefore claims 21, 24, 29, and 36 and 37-38 are rejected using the same rationales.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wang et al. (US6901048) disclose link-level protection of traffic in a packet-switched network.

Belcea (US7212504) discloses time division protocol for an ad-hoc peer-to-peer radio network having coordinating channel access to shared parallel data channels with separate reservation channel.

Corson et al. (US6667957) disclose adaptive routing method for a dynamic network.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wutchung Chu whose telephone number is 571 270 1411. The examiner can normally be reached on Monday - Friday 1000 - 1500EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on 571 272 7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WC/  
Wutchung Chu

EDAN ORGAD  
PRIMARY PATENT EXAMINER

*Edan Orgad* 1/19/07